Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-15. (Canceled)

16. (New) A method for managing traffic comprising objects in motion in a network having a physical layer, the method comprising:

mapping a packet switched control network (PSCN) to topology of the physical layer, wherein packet routing links (PRL) in the PSCN are mapped to path sections in the physical layer;

associating a packet control unit (PCU) in the PSCN with a corresponding path point in the physical layer;

utilizing a traffic information unit (TIU), associated with the path point, for detecting and providing traffic arrival and departure information at the path point;

associating a specific packet in the PSCN with a specific traffic object in the physical layer;

routing the specific packet along the packet routing links corresponding to the detected movement of the specific traffic object in the physical network;

determining whether the arrival of the specific traffic object at one of the path points is detected;

generating an object arrival information if the arrival of the specific traffic object at the one of the path points is detected and sending the specific packet associated with the specific object to the packet control unit corresponding to the one of the path points; and

directing a synchronization device in a packet control unit to send a packet, corresponding to the specific traffic object, to the packet control unit that corresponds to the path point whose associated traffic information unit has output the specific traffic object arrival information.

17.   (New) A packet control unit in a packet switched control network (PSCN), the PSCN comprising a number of packet control units for controlling packet traffic being routed between the number of packet control units via packet routing links, the PSCN being mapped to a network with a physical layer having object traffic such that the packet routing links and the packet control units correspond to path sections and path points, respectively, in the physical layer and each path point is associated with a traffic information unit for detecting arrival of an object at the path point and outputting object arrival information, the packet control unit comprising:

a transmission device for sending a packet, corresponding to the object on the physical network, to a target packet control unit in the packet switched control network, the target packet control unit corresponding to a specific path point on the physical network;

a reception device for receiving packets from other packet control units in the packet switched control network and for receiving object arrival information indicating the arrival of at least one object at a path point corresponding to the packet control unit; and

a synchronization device for sending the packet, corresponding to the object on the physical network, to the packet control unit whose corresponding path point has detected the arrival of the object corresponding to the packet.

18.   (New) A packet control unit in a packet switched control network (PSCN), the PSCN comprising a number of packet control units for controlling packet traffic being routed between the number of packet control units via packet routing links, the PSCN being mapped to a network with a physical layer having object traffic such that the packet routing links and the packet control units correspond to path sections and path points, respectively, in the physical layer and each path point is associated with a traffic information unit for detecting arrival of an object at the path point and outputting object arrival information, the packet control unit comprising:

a transmission device for sending a packet, corresponding to the object on the physical network, to a target packet control unit in the packet switched control network according to a predetermined routing method for controlling the packet traffic, the target packet control unit corresponding to a specific path point on the physical network;

a reception device for receiving packets from other packet control units in the packet switched control network and for receiving object arrival information indicating the arrival of at least one object at a path point corresponding to the packet control unit; and

a synchronization device for deleting the packet, corresponding to the object on the physical network, if the object arrival information indicating the arrival of the object corresponding to the object on the physical network is not received within a predetermined time interval by the reception device.

19.   (New) The packet control unit of claim 18, the synchronization device being adapted to cause said transmission device to send to said packet control unit corresponding to said path point at which the object arrival was detected, a packet stored at said one of said plurality of packet control units and to be transmitted to said target packet control unit.

20.   (New) The packet control unit of claim 18 the synchronization device further comprising means for causing the transmission device of the packet control unit corresponding to a path point from which the object has moved to send a packet stored at another packet control unit to the packet control unit corresponding to the path point at which the object arrival was detected.

21.   (New) The packet control unit of claim 18, wherein the synchronization device is adapted for causing the transmission device to send a copy of a packet stored at the packet control unit to the target packet control unit where the object arrival was detected.

22. (New) The packet control unit of claim 18, wherein the synchronization device is adapted for storing packet link information indicating the target control unit, the synchronization device being further adapted to cause the target packet control unit, indicated by the packet link information, to send the packet stored to the packet control unit corresponding to the path point at which the object arrival was detected.

23. (New) The packet control unit of claim 18, the synchronization device being adapted to broadcast a packet search request to all adjacent packet control units to cause said target packet control unit to send a packet to the packet control unit corresponding to said path point at which the object arrival was detected.

24. (New) The packet control unit according to claim 18, the synchronization device being adapted to cause a packet generating device to generate a new packet and cause said transmission device to send to said packet control unit corresponding to said path point at which the object arrival was detected said newly generated packet.

25. (New) A traffic management system for managing object traffic in a network, the traffic management system comprising:

a physical layer, comprising:

objects moving along

path sections that are connected to each other by path points located at the end of each path section;

traffic information units associated with each path point, the traffic information unit adapted for detecting arrival of objects at the respective path point and for sending object arrival information associated with the corresponding path point; and

a packet switched control network, comprising:

packet routing links, corresponding to the path sections on the physical layer, for routing packets corresponding to objects on the physical layer;

packet control units, corresponding to the path points on the physical layer, connecting the packet routing links for controlling packet traffic so that each

packet corresponds to an object moving on a corresponding path section in the physical layer, the packet control units adapted for sending, as a source packet control unit, packets to a target packet control unit via the packet routing links according to a predetermined packet routing method for controlling the packet traffic in the packet switched control network,

whereupon a traffic information unit, detecting the arrival of an object at the traffic information unit associated path point, outputs a corresponding object arrival information and a packet control unit corresponding to the associated path point does not detect the arrival of a packet corresponding to the object, a synchronization packet control unit is adapted for sending a packet corresponding to the object to the packet control unit corresponding to the associated path point to synchronize the packet routing and the object movement.

26.   (New) The system of claim 25, wherein the traffic information units are also adapted to guide an object onto a path section to a succeeding path point corresponding to a target packet control unit determined by the source packet control unit in accordance with said routing decision.

27.   (New) The system of claim 25, wherein a packet search request comprises a search packet being sent to packet control units adjacent packet control units.

28.   (New) The system of claim 27, wherein the search packet comprises a life time field indicating the life time of the search packet and the adjacent packet control units comprise a deletion device adapted to delete the search packet if the life time field indicates a life time exceeding a predetermined maximum allowable life time.

29.   (New) A method for managing traffic comprising objects in motion in a network having a physical layer, the method comprising:

mapping a packet switched control network (PSCN) to topology of the physical layer, wherein packet routing links (PRL) in the PSCN are mapped to path sections in the physical layer;

associating a source packet control unit (PCU) in the PSCN with a corresponding path point in the physical layer;

utilizing a traffic information unit (TIU), associated with the path point, for detecting and providing traffic arrival information at the path point;

associating a specific packet in the PSCN with a specific traffic object in the physical layer;

routing the specific packet along the packet routing links corresponding to the detected movement of the specific traffic object in the physical network;

determining whether the arrival of the specific traffic object at one of the path points is detected;

generating an object arrival information if the arrival of the specific traffic object at the one of the path points is detected and sending the specific packet associated with the specific object to a packet control unit corresponding to the one of the path points; and

directing a synchronization device in one of the packet control units in the PSCN to delete the specific packet if the object arrival information of the specific traffic object at the one of the path points is not received in a predetermined time interval by a reception device in the source packet control unit.

30.   (New) The method of claim 29, further comprising directing a transmission device in the packet control unit to send, to said packet control unit corresponding to a path point at which the object arrival was detected, a packet stored at the one of the packet control units to a target packet control unit.

31.   (New) The method of claim 30, generating a new packet and sending the generated packet to the packet control unit corresponding to the path point at which the object arrival was detected.